

**ABSTRACT**

In accordance with the present invention, there is provided a DNA (deoxyribonucleic acid) fragment which encodes the *MmeI* type II restriction endonuclease enzyme. This one polypeptide possesses two related enzymatic functions; namely an endonuclease activity which recognizes the DNA sequence 5'-TCC(Pu)AC-3' and cleaves as indicated by the arrows:

5'-TCCRAC(N20)↓-3'

3'-AGGYTG(N18)↑-5'

and a second enzymatic activity that recognizes the same DNA sequence, 5'-TCC(Pu)AC-3', but modifies this sequence by the addition of a methyl group to prevent cleavage by the *MmeI* endonuclease activity.